

**PATENT APPLICATION**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND INTERFERENCES

In re the Application of

Alain BETHUNE

Group Art Unit: 1734

Application No.: 09/688,961

Examiner: K. MCCLELLAND

Filed: October 17, 2000

Docket No.: 107615

For: METHOD OF HOT MARKING, AND A MULTILAYER STRUCTURE FOR  
IMPLEMENTING SUCH A METHOD

**REPLY BRIEF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

The following remarks are directed to the new points of argument raised in the  
Examiner's Answer dated April 6, 2007.

I. Remarks and Arguments

In the Examiner's Answer, the Examiner continues to allege that JP '492 and Reed would have been combined to achieve the varnish that is partially cured by exposure to heat prior to transfer, as required in claims 1 and 26. The Examiner alleges (1) that the secondary reference, Reed, is relied upon to teach that UV and heat are used interchangeably, (2) that the UV curing step of the primary reference, JP '492, would give off some amount of heat. The Examiner then alleges that one skilled in the art desiring to improve the capabilities of the transfer sheet in JP '492 would look to the teachings of Reed to use the alternative radiation and heat curable varnish, and that one would have been motivated to improve the functionality of the varnish by using a varnish capable of being cured by either heat or UV radiation. See pages 10-11 of the Examiner's Answer.

The Examiner alleges that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See page 10 of the Examiner's Answer.

Here, it is clear that the references considered together do not suggest what the Examiner contends, i.e., they do not teach or suggest (1) a material that is both thermally and UV curable, and (2) partially curing any such material by heat before transfer and then finally curing by UV exposure after transfer.

As set forth in the September 20, 2006 Appeal Brief, JP '492 teaches a protective layer that is cured by irradiation, e.g., the protective layer is UV curable. In other words the protective layer taught by JP '492 is not indicated to thermally cure and is not a UV thermal varnish. Reed teaches the use of materials that are heat or UV curable (column 6, lines 1-12 of Reed, describing a thermally curable material or a UV curable material), and teaches curing only after transfer, and does not teach or suggest that thermal energy could be used for partial

curing before transfer as required in JP '492. Reed does not teach or suggest heating the transfer layer at all prior to the transfer as recited in claims 1 and 26. Instead, Reed teaches that the resin layer is transferred in liquid phase. Only after transfer is the resin layer in Reed cured.

Contrary to the Examiner's statement, Reed does not teach or suggest that UV and heat are used interchangeably. Formulations that are curable by UV include different curing agents than formulations that are curable by heat. For example, the curable resin of JP '492 is curable by UV radiation and not heat. No amount of heat applied to the curable resin of JP '492 will cause any amount of curing. Moreover, Reed also does not teach or suggest that its transfer layer is curable both by radiation and heat. Instead, Reed teaches that the heat transfer may be conducted at a temperature such as to initiate cross-linking, or that polymerization may be performed by photopolymerization in which the transfer layer is exposed to UV radiation. See column 6, lines 5-12 of Reed. Reed does not teach or suggest the use of a material in its transfer layer that is curable by both heat and UV radiation together, and can be used in a manner in which heat is used to partially cure the material and in which UV radiation may then be subsequently applied to finally cure the material. Reed thus does not teach or suggest one of ordinary skill in the art a heat curable and radiation curable material, and further does not teach or suggest partially curing any such material by one route (heat) and then finishing curing after transfer by a different route (radiation). Neither reference suggests these required claim features to one of ordinary skill in the art, and thus the references clearly fail to suggest the claimed process.

Further, Reed teaches that the transfer layer is heat meltable in order to be transferred in the liquid phase as described above. See column 5, lines 25-30 of Reed. Thus, if a UV curable resin is utilized in the transfer layer of Reed, one would not apply heat to partially cure the transfer layer because Reed requires the layer to be heat meltable, not heat cured.

Reed in this regard clearly teaches against use of partial heat curing in a UV curable material, such heat curing destroying the ability of the material to transfer in the liquid phase. Thus, one would not have been directed to a UV curable material in Reed that is also heat curable (as allegedly by the Examiner) for this further reason.

On the other hand, JP '492 aims to avoid having to have a layer of resin that melts under heat prior to transfer. See the translation of JP '492 at page 2, paragraph 3. In contrast, Reed teaches that melting the transfer layer is desired in order to provide a liquid phase to the layer to allow penetration of the transfer layer into the substrate upon transfer. See column 5, lines 53-60 of Reed. Thus, one of ordinary skill in the art would not have looked to modify the teachings of JP '492 by requiring an application of heat. Applying heat to the Reed material is described in Reed to melt the material, an undesired result in JP '492. Thus, one of ordinary skill in the art following the teachings of JP '492 would not have used the material of Reed, taught to be heat meltable, as it is exactly opposite of the desired curing in the teachings of JP '492, and thus would destroy JP '492.

Accordingly, the references provide no reasons to have combined the teachings of JP '492 and Reed in the manner alleged by the Examiner.

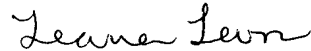
As previously explained, none of Hekal, Howard, Kamen or Davis remedy the deficiencies of JP '492 and Reed.

## II. Conclusion

For all of the reasons discussed above and in the Appeal Brief, it is respectfully submitted that the rejections are in error and that claims 1, 3-10, 12, 13, 21, 22, 24-26, 28-35, 37-43, 46, 47, 56, 57, 60 and 61 are in condition for allowance.

For all of the above reasons, Appellant respectfully requests this Honorable Board to reverse the rejections of claims 1, 3-10, 12, 13, 21, 22, 24-26, 28-35, 37-43, 46, 47, 56, 57, 60 and 61.

Respectfully submitted,



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Date: June 4, 2007

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